UST Upgrade History
Lessons Learned

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USTs regulations in California were developed as a result of:

- Impacts discovered in the Santa Clara area in the early 1980s.
  - Impacts to public supply wells
  - Leaking fuel tanks
  - Leaking solvent tanks

AB 2013 (Cortese)

- Passed in September 1983.
- Required all underground storage tanks/structures to be registered with the SWRCB.
- Required them to be register by June 30, 1984

AB1362 (Sher)

- This is a companion bill to AB 2013 (Cortese)
- This law established the regulation of Underground Tanks (USTs)
- It established the requirements for USTs:
  - Inspection
  - Monitoring
  - Reporting and
  - Leak identification.

County of San Diego
Sept. 1983 through Sept. 1985

- The BOS in January 1984 directed EHS to implement the new laws in San Diego County.
- May 1984 the EHS began permitting the installation and removal of USTs.
- When leaks and/or releases were discovered EHS referred these cases to the RWQCB for action.

SWRCB 1983 through 1985

- It took the SWRCB approximately two years to develop the UST regulations.

- These regulations generally followed the regulations developed by Santa Clara Water District.

1985 UST regulations

The regulations that were adopted by the SWRCB in August 1985 required:

- All **new tanks** to have secondary containment.
- The secondary containment to be monitored for leaks.
- No specifics were provided regarding the piping system other than:
  - Overflow valves and
  - Emergency shut-off valves.

1985 UST regulations (cont.)

Established 8 monitoring alternatives for existing single walled USTs.

- Alt #1 - Monthly tank testing.
- Alt #2 - Daily vapor monitoring, semi-annual groundwater monitoring and one time soil testing.
- Alt #3 - Daily vapor monitoring, annual tank testing and one time soil testing.
- Alt #4 – Monthly groundwater monitoring and one time soil testing

1985 UST regulations (cont)

- Alt #5 – Daily inventory reconciliation, annual tank testing and continuous pipeline leak detectors.
- Alt #6 – Daily inventory reconciliation, annual tank testing, continuous pipeline leak detectors, one time soil testing and vapor or groundwater monitoring.
- Alt #7 – Weekly tank gauging and annual tank testing.
- Alt #8 – Annual tank testing, and daily inventory reconciliation or daily tank gauging.

LUFT Task Force 1985

- December 1985 a statewide Task Force was formed to establish procedures to determine whether an UST site is clean and safe.
- Consisted of staff from the SWRCB, DHS, RWQCBs and various implementing Counties and Cities.
- Their charge was to develop guidance on what is clean, site investigation and remediation procedures
- The Leaking Underground Fuel Tank Field (LUFT) Manual was released in October of 1989.

County of San Diego Sept. 1985 through 1986

- In December 1985 EHS began to overseeing the investigation and cleanup of leaking underground storage tank sites.
- Failed integrity tests were considered to be a release until proven otherwise.
- In mid-1986 EHS began recovering its oversight cost by directly billing the Responsible Parties.
- In mid-1986 due to the slow progress of the LUFT Document, San Diego County began development of its own guidance on site investigation.

County of San Diego 1987

- By early 1987 EHS through tank removal inspections noted that approximately 60% of the sites had experienced a leak.
  - 50% - Tanks with heavy corrosion and/or holes.
  - 50% - Based on condition of the USTs it was suspected the release was from the piping system
- It was also noted that integrity tank testing was a very poor predictor of the tightness of the tanks system.
- By late 1987 it was clear that the piping was a critical component so the SWRCB introduced secondary containment requirements for piping systems.

County of San Diego 1988

- April 1988 the SWRCB started the Local Oversight Pilot Program
- October 1988, EHS held it first SAM Annual Meeting.
- At that time EHS provided its policies, procedures and guidance which eventually became a part of first SAM Manual in 1991.

County of San Diego 1989

- January 1989 the County started requiring soil sampling at all tank removals.
- Experience showed that:
  - Visual and odor observations were not reliable at identifying releases.
  - A number of sites had been missed when relying exclusively on visual observations and odors.

SWRCB 1989

- October 1989 the LUFT Task Force release their "LUFT Field Manual

- SB 299 passed establishing the current Underground Storage Tank Cleanup Fund (UST Cleanup Fund). The fund established:
  - The insurance coverage required to meet federal regulations and
  - Makes available to RPs up to $1,000,000 for cleanup and investigation for each release.

SWRCB 1990

- January 1990 the State was given authorization to implement the Federal UST Regulation. The regulations were updated.

- This update included the 1998 deadline for Repair and Upgrading of all existing systems with:

  - Corrosion protection,
  - Spill and overfill prevention equipment and
  - Leak Detection.

County of San Diego 1990

- July 1990 the County's contract with the SWRCB was shifted to the Local Oversight Program (LOP).

- December 1990 EHS released the first version of the SAM Manual (1991 SAM Manual)

SWRCB 1991

- January 1991 the state UST Cleanup Fund started collecting the fuel taxes to fund the program.
- August 1991 the UST Regulations were amended to conform to the federal regulations.
- December 1991 the UST Regulations were amended to include Article 11, which incorporated the UST Cleanup fund into the regulations

SWRCB 1992

- The UST Cleanup Fund began issuing letters of commitment for reimbursement for site investigation and mitigation activities.
- The technology used for monitoring operating UST finally caught up with the regulations and more specific standards were developed which established acceptable equipment to be used.
- These new standards resulted in owner/operators having to upgrade their systems with approved technology.

SWRCB 1993 through 1994

- December 1993 all tank Owner/Operators had to demonstrate they had financial responsibility to continue operating their USTs.
- May 1994 the California Regulations were amended to included new definitions which included:
  - E.C. Bladder Systems,
  - Statistical and Inventory Reconciliation,
  - Exempt tanks (Hydraulic lifts, tanks in vaults) and
  - Licensing Tank Tester.

SWRCB 1995

- SB 1764 required the SWRCB to establish an Advisory Committee to provide recommendations on changes to the required cleanup standards.
- SWRCB contracted with Lawrence Livermore National Laboratory (LLNL) and U.C Davis to provided a technical evaluation of the current LUFT Program in response to SB 1764.
  - October 1995 LLNL released their report "Recommendations to Improve the Cleanup Process for California's Leaking Underground Fuel Tanks (LUFTs)" and
  - November 1995 LLNL release their technical report "California Leaking Underground Fuel Tank (LUFT) Historical Case Analysis."

SWRCB 1995 (cont.)

- Based on the LLNL report in December 1995 the SWRCB directed the RWQCBs to aggressively close “Low Risk” sites.

DHS, SD RWQCB & SWRCB 1996

- January 1996 State DEH issued an Alert and Monitoring Advisory regarding MTBE to all Public Water systems.
- April 1996 the San Diego RWQCB implemented their “Interim Guidance on Required Cleanup at Low-Risk Fuel Contaminated Sites”.
- May 1996 the SB 1764 Advisory Committee provided their recommendations of incorporating risk-based decision processes among other issues.
- July 1996 the SWRCB directed the RWQCBs begin requiring the screening of sites for MTBE.

County of San Diego 1996

- Mid 1996 DEH began requiring MTBE testing on all sites

(note: DEH had begun looking at MTBE in 1993 on a case-by case basis and established testing protocol for MTBE starting in the 1995 SAM Manual.)

County of San Diego 1998

- December 1998 the UST upgrade requirements went into effect.
  - Interior lining
  - Corrosion protection
  - Spill containment
  - Overfill protection equipment
  - Striker plates and drop tube protection
  - Auto pump shut-off
  - Bladder systems leak detection

SWRCB 2000

- SB 989 (Sher) required all UST systems to have:
  - Under-dispenser containment
  - Contractors must be licensed to install, maintain, repair or calibrate leak detection systems.
  - Enhanced leak detection systems within 1,000 feet of the public drinking water well
  - UST Cleanup Fund claims increased to $1,500,000.
  - Extended the UST Cleanup Fund to 2011 and UST Loan Program to 2003
  - Removed MTBE from gasoline by the end of 2002
  - Required local agencies to inspect UST facilities annually.

SWRCB 2000 (cont.)

- March 2000, the SWRCB released their "Draft Guidelines for Investigation and Cleanup of MTBE and Other Ether – Based Oxygenates".
- The SWRCB has never finalized this document and it remains in draft form.
- The SWRCB has mandated in the LOP contract compliance with the requirements in this draft guidance.

SWRCB 2001

- May 2001 Amendments to SB989 were incorporated into law requiring all UST systems to install:
  - Dispenser pans and
  - Monitoring systems for dispensers
  - And require an inspections of those systems
  - located within 1,000 feet of a public well to be inspected at least once a year

SWRCB 2004

May 2004 the regulations again were changed.

- The following certifications are required for:
  - Persons who are responsible for activities at an UST Facility
  - Persons who conduct UST facility compliance inspections
  - Persons who install UST system or components and
  - Persons who install calibrate, test and maintain equipment

SWRCB 2004 (cont.)

- Requires the UST owner to document that they are in compliance and identify who is the designated UST operator
- Requires an annual on-the-job training to facility employees
- Requires owner/operate to provide product compatibility and permeability information when requested by DEH or the SWRCB

SWRCB 2004 (cont.)

- Requires automatic leak detection systems on all double-walled pressurized piping and provides an alternative to the 0.1-gallon per hour annual line test.
- Permit licensed tester to install calibrate, test and maintain monitoring equipment
- Require all new UST systems to be both vapor and liquid tight.

What have we learned?

We do not have all the answers.

We are learning as we go.